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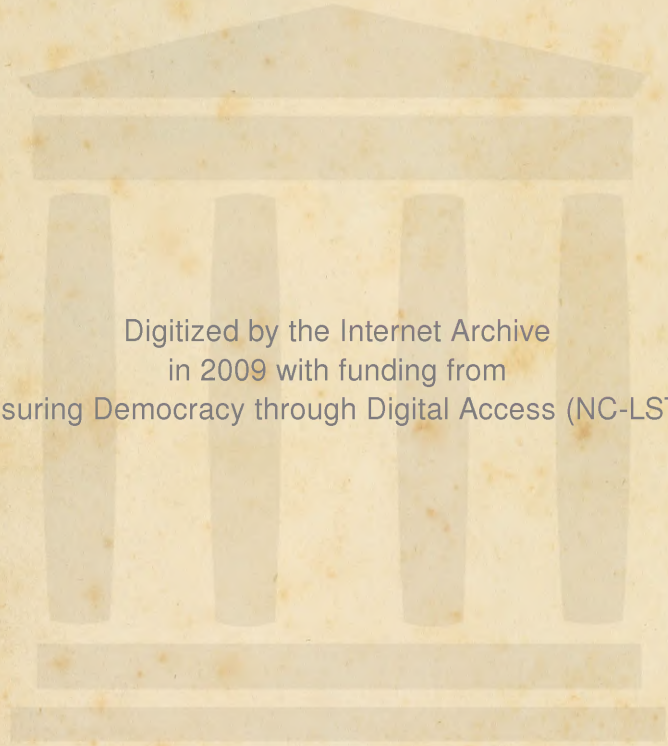

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No. II

SECOND ANNUAL REPORT

OF

THE RALEIGH AND GASTON

RAIL ROAD COMPANY.

JANUARY 22, 1838.

RALEIGH:
PRINTED AT THE OFFICE OF THE RALEIGH REGISTER.
1838.

PROCEEDINGS OF THE STOCKHOLDERS

OF THE

RALEIGH AND GASTON

RAIL-ROAD COMPANY.

At a General Meeting of the Stockholders of the Raleigh and Gaston Rail-Road Company, held at the Banking-house of the State Bank, on Monday, the 22d of January, 1838, on motion of D. Cameron, Esq. John D. Hawkins, Esq. was called to the Chair, and E. B. Freeman appointed Secretary.

Upon its being ascertained that a majority of the Stock was represented, the Meeting proceeded to business.

The Report of the President and Directors, together with that of the Chief Engineer, were submitted, and, on motion of Chas. F. Osborne, Esq. ordered to be received and printed, with the accompanying documents, under the direction of the President and Directors.

The following Resolutions were offered by C. F. Osborne, Esq.

Resolved, That the President and Directors be instructed to receive such subscriptions of Stock in the Raleigh and Gaston Rail-Road Company, as may be offered; provided such subscriptions do not in all exceed one million of dollars.

2. *Resolved*, That in the event of the whole amount of the Capital not being subscribed, the President and Directors be authorized to negotiate a loan for the deficiency, (convertible or otherwise, as they may think proper,) on such terms as they may deem most advantageous to the interest of the Stockholders; and that they be further empowered to pledge the property of the Company for the guaranty of said loan, and the payment of its interest, and to employ suitable agents.

3. *Resolved*, That the proceedings of the President and Directors, in letting out the remainder of the Road to Raleigh, is unanimously ap-

proved, and that they be desired to prosecute the work as rapidly as possible, consistently with its durability and the interests of the Stockholders.

4. *Resolved*, That the President and Directors be requested to apply to the next Session of the Legislature of North-Carolina, for an increase of the Capital Stock of the Company, to the amount of one million and a half of dollars, and for such other aid as they may deem most consistent with the interests of the Stockholders.

5. *Resolved*, as the opinion of the Stockholders, that it is of the greatest importance to the success of this work, that the Road should be extended to Columbia, South-Carolina, and that they will use their utmost efforts to insure its extension to the South-Carolina line.

6. *Resolved*, That the Report of the Committee appointed to examine the accounts and vouchers of the President, be approved and adopted, and that he be directed to balance the Books, pursuant to the recommendations of said Committee.

7. *Resolved*, That in future the Annual Meeting of the Stockholders be held on the first Monday in June in each and every year.

Which were unanimously adopted.

The Meeting then proceeded, on motion of Mr. OSBORNE, to the election of a President and five Directors. WM. BOYLAN and SAMUEL S. DOWNEY were appointed to superintend the balloting.

The Committee reported that the following persons were elected: GEO. W. MORDECAI, President; Duncan Cameron, Wm. Boylan, Joseph W. Hawkins, Chas. Manly and Thos. P. Devereux, Directors.

On motion of DUNCAN CAMERON, Esq. a Committee consisting of WM. ROBARDS, WM. PEACE, and ALFRED JONES, or a majority of them, was appointed to examine the accounts of the President, and report to the next Annual Meeting.

On motion of Mr. GARNETT, the following Resolution was adopted:

That we feel a lively interest in establishing a communication by Rail-Road with the West, and invite the co-operation of our fellow-citizens of Salisbury and the adjacent country, in procuring a Charter from the Legislature, for that purpose.

The Meeting then adjourned.

ANNUAL REPORT

OF THE

RALEIGH & GASTON RAIL ROAD

COMPANY.

In submitting to the Stockholders the following Report of their proceedings since the last Annual Meeting, the President and Directors deem it not amiss, briefly to advert to the state of affairs and the condition of the work at that time.— It will be seen on reference to the Report then made, that the Road had been located as far as Tar River, and the greater part placed under contract. From the severity of the winter, but little work had then been done. As soon, however, as the Spring opened, the work was vigorously prosecuted, and we have the satisfaction of stating that, with a single exception, the contractors have thus far complied with their engagements. The grading of 48 miles of the Road is now completed, with the exception of a few hundred yards, and the work executed in a manner highly creditable to the contractors and the Engineers entrusted with its supervision.— The soil is admirably adapted to the construction of a Rail-Road; and the cuts are generally free from water. The banks on the first nine miles of the Road, from Gaston to Littleton, having been thrown up a sufficient time to become firm, it was thought advisable to lay down the superstructure on this section at once; so, that it is now ready for use as soon as the Bridge across the Roanoke shall be completed. On the remaining 38 miles, the timber has all been delivered and dressed,

ready to be laid down as soon as the embankments shall have become sufficiently settled, from exposure to the Winter's frost.

The Bridge at Gaston, which had just been commenced at the last Meeting, is now completed within a span and a half, and would have been ready for the cars on the first of January, but for our disappointment in receiving timber which had been contracted for and procured on the lower Roanoke; but, owing to the low water in the River, and the difficulty in obtaining means of transportation, it could not be brought up in time, notwithstanding every effort to do so. This difficulty is now removed, and the Bridge will be speedily completed. The Iron, which was ordered, has all arrived, and is ready to be laid; and we see no reason why the whole 48 miles should not be ready for transportation by the first of June, though experience has made us somewhat cautious in giving any pledges to the public on this subject.

On the Road between Roanoke and Tar River, there are five Depots,viz:—at Littleton; at Brown's, five miles north of Warrenton; at Lambkin's, opposite Warrenton; at Twitty's, and at Henderson, about three miles south of the Chalk Level; all of which, with the water stations and wood houses, are nearly finished.

The Land damages have, with one or two exceptions, been liquidated in the counties of Warren and Granville; but in Halifax, though proceedings have been instituted, the difficulty of procuring suitable Commissioners to act, has, as yet, prevented their being adjusted. This has been increased, by the omission in our Charter to provide compensation for the services of the Commissioners. We hope, however, they will soon be settled, and that those who, for the purpose of enhancing their damages, have pretended such hostility to this work, will then cease their opposition. In Franklin and Wake, steps will be taken at the ensuing Courts, to condemn the lands of those with whom we cannot effect compromises.

The line from Tar River to Raleigh has been located.—After crossing the River below Chavis' Ford, it runs by Presley Person's, near Winston & Kearney's Store, crosses Cedar Creek and the two Brandies, runs through Wake Forest, along by the Baptist Institute and Alston's Store, crosses Neuse River, near Wm. B. Dunn's, thence by Robert Jeffreys', crosses Crabtree about 250 yards below Jones' Bridge, thence crossing the Stage Road at the Pigeon House, it enters Raleigh in the rear of Thomas P. Devereux's, and terminates at Halifax Street, in the ravine between Mr. Devereux's and the Eagle Hotel. For a more particular and minute description of this location, we beg to refer to the detailed Report of the Chief Engineer, which accompanies this. Believing that the interest of the Stockholders would be greatly promoted by the speedy completion of the Road to Raleigh, and finding that contracts could be made on more favorable terms at that time than any subsequent period, immediately on the completion of the grading on the first division, it was determined to go on with the work. The whole line to Raleigh is now under contract, and the contractors have commenced operations. This course will, we hope, meet the unanimous approbation of the Stockholders.

It was never contemplated or expected by any one, acquainted with the work, that the sum originally subscribed would be sufficient to complete this undertaking; and it is now evident, that the whole Capital of one million will be insufficient for that purpose. It will be necessary, therefore, for the Stockholders, at the present meeting, to adopt some measure for the increase of the Capital, to enable us to comply with our contracts.

As the scheme would be incomplete, were we now to stop short, and the value of the Stock be thereby materially affected, we cannot doubt that they will adopt any practicable plan which can be devised for raising the means of carrying on the work. To effect this, three modes have suggested

themselves. By the terms of our Charter, the original subscribers are first entitled to take the residue of Stock unsubscribed. The first plan then would be, to offer to apportion the remaining Stock among the present solvent Stockholders, according to the amount already held by them. This would, in some instances, operate unjustly and oppressively, as many may have made as large investments in the first instance as their means would enable them to do; besides, we think this could only be done by the unanimous vote and consent of the Stockholders, and it is on that account further objectionable, as it would be difficult, if not impracticable, to obtain this.—To comply, however, with the provisions of our Charter, the offer can be made to the respective Stockholders, who can then accept or reject it at their option.

The next and most obvious plan, is to re-open Books of Subscription for filling up the amount unsubscribed. Had the condition of the country continued as prosperous and flourishing, and the facilities for obtaining money as great, as at the commencement of this work, we might calculate with certainty upon the success of this measure, and that the same anxiety to possess our Stock, which characterized our first movements, would be again manifested; for nothing has occurred to diminish our confidence in the ultimate success of the undertaking. But owing to the sudden and unfortunate revulsion which has taken place in the pecuniary affairs of the country, (from causes unnecessary to be here alluded to,) Stocks of every description have undergone a very considerable decline; and, from the dificulty of procuring money, are no longer sought for with the same avidity as formerly. Our largest capitalists find it inconvenient to meet their existing engagements, and those having the command of money have so many opportunities of making investments affording immediate and exorbitant profits, that but few can be found to take Stock in incorporated Companies, however flattering their prospects may be. From these causes we apprehend

there may be some difficulty in obtaining subscriptions for the whole remaining Stock. This can, however, be attempted, and in the event of its not succeeding, it is then recommended to the Stockholders to vest the Board of Directors with authority to make a convertible loan or loans, to the amount of the residue of the Capital Stock, and to pledge the property of the Company for the payment thereof. This plan, if sanctioned by the Stockholders, is believed to be more practicable than either of the others; for, while the scarcity of money is so great in the United States, it appears to be abundant in England, and Capitalists there are seeking investments far less profitable than this would be. As soon as confidence in American credit shall be restored, which we are pleased to say is daily increasing, and a sufficient portion of our Road shall be in operation to afford a guarranty for the loan and the payment of its interest, we have every assurance that it can be effected there, if not in this country, and we are confirmed in this belief by our knowledge of the fact, that several Rail-Road Companies in the United States have already negotiated loans in England to a considerable amount, none of them giving better security than we can offer. We would, therefore, recommend that the President and Directors be instructed, in the first place, to receive additional subscriptions for Stock to an amount, not exceeding in all one million of dollars; and, in the event of the whole not being subscribed, that they be authorised to negotiate loans convertible, or otherwise, as they may think proper, for such sum as may be required to increase the whole capital of the Company to one million of Dollars; and, for that purpose, that they be empowered to employ suitable Agents. The interest of the Stockholders, regarding them merely as such, the benefit to the country and the whole success of the work demand its extension, and we are therefore satisfied that the Stockholders will adopt any means in their power to effect this.

A line of Coaches commenced running between Gaston and Fayetteville during the last spring, and, although the

change of times has caused a considerable reduction in the number of travellers, it has received a fair proportion of public patronage. From the experience gained from this, we are satisfied that the want of facilities is the only obstacle to the diversion of the greater part of the southern travel along this route. These will be greatly increased by the completion of our Road to Raleigh, and if two good lines of Coaches shall then be established, the one leading South to Columbia and Augusta, and the other, Westwardly to Salisbury, there to connect with the Tennessee and Piedmont lines, we have little doubt that the principal part of the Southern and Western travel will find its way to this Road. It may not be irrelevant or improper here, to draw a comparison between the present travelled routes from the South and Southwest to Baltimore, shewing the difference in the distance by them respectively. Taking Milledgeville, Geo. as the starting point, the distance from that place to Baltimore, by the Piedmont, the most direct route, is 692 miles—the whole of which journey, as far as Potomac Creek, is performed in Coaches. The distance from Milledgeville, *via* Augusta, Columbia, Fayetteville, Raleigh, Petersburg, Richmond, Fredericksburg and Washington City to Baltimore, is 711 miles, or only 19 miles farther than the other. Of this, upon the completion of our Road to Raleigh, there will be 235 miles of Rail-Road, which will far more than counterbalance the increased distance; and even those, choosing to travel on the Piedmont line, by diverging at Salisbury, (a distance of about 120 miles from Raleigh) may intersect our Road here, when they will have a continuous line of Rail Road, with an increase of only 37 miles in distance. The distance by the third route, *via* Charleston, Wilmington, Halifax, Portsmouth, &c. to Baltimore, is 862 miles, being 170 miles greater than by the Piedmont or nearest, and 151 miles than by the Road *via* Raleigh. Should the contemplated scheme of connecting Raleigh with Columbia and Augusta, by Rail-Road, be carried into effect, which we are satisfied must be done in the course of a few years, it will

place this route beyond competition; and the Stock of our Road must become as valuable as any in the Union.

In prosecution of this, and pursuant to the authority given by the Stockholders at their last meeting, a Reconnoissance of the route from Raleigh to Columbia was made by the Chief Engineer of this Company, whose highly satisfactory Report shows that a very favorable route may be obtained. Books of subscription for Stock in the Raleigh and Columbia Road were opened during the past year, and a large amount subscribed—the greater part in the city of Raleigh—but not sufficient to secure the Charter. As we still regard the construction of this Road of vital importance to the success of our own, it is thought proper to bring it again before the Stockholders that such measures may be adopted by them as they may deem advisable.

Whenever this Road shall be commenced, we are assured that the Legislature of South-Carolina will, with their accustomed liberality and spirit of enterprise, incorporate a Company for the further extension of the Road to Columbia; and, we learn, that the Charleston and Cincinnati Road has been located with a view to that connexion. We are still of opinion that the route originally contemplated through the counties of Chatham, Moore and Richmond, is the proper direction for this Road, both as regards the directness of the communication, for the accommodation of the Northern and Southern travel, and the probability of its ultimate extension Westwardly, so as to connect us with Salisbury and the whole Western section of the State; for we cannot yet abandon the hope, that the citizens of this fertile section of our State, cut off as they are from all facilities for transportation to market for their varied and valuable products, will, ere long, find it to their interest to unite with us in accomplishing this object, so desirable to themselves, and tending so manifestly to the improvement of the internal condition of our State, and the developement of its vast resources. Ours appears to us now, the only feasible scheme; and although, heretofore, disap-

pointed in our expectation of interesting them in our project, we are still disposed to extend to them the hand of good fellowship, and will most cheerfully unite in procuring for them at least one good outlet for their produce. This we shall be enabled to do, by diverging at Haywood, or some other suitable point in the county of Chatham, extending thence Westwardly, along the borders of Randolph and Guilford, to the Yadkin, whence, if desirable, it can be continued so as to intersect the Charleston and Cincinnati Road at some favorable point within the State.

Since the last Annual Meeting, the heavy expenditures incident to a work of this magnitude, and the rapidity of its progress, have compelled us to call largely upon the Stockholders for contributions. Instalments of *ten per cent.* have been required to be paid on the first days of March, July, October, December, January and February, which, together with the amount previously paid, have produced up to the first of January, 1838, the sum of $406,125 85.

Although the difficulties of the past year have caused some little delay in the collections, and produced some failures among the Stockholders, yet upon the whole, we believe the payments have been generally made with more punctuality than to any other Road now progressing. To relieve the Stockholders, as far as possible, at a season when the pressure was greatest, a loan was made from the Bank of the State, to whom the Company is now indebted in the sum of $70,000, which is to be provided for and refunded out of the Instalments now due, unless some other arrangement is made by the Stockholders.

A detailed Statement of our Receipts and Disbursements will be found appended to this Report, to which we beg to refer. The accounts and vouchers have been examined by the Committee appointed for that purpose, whose Report is herewith submitted.

By order of the Board of Directors,

GEO. W. MORDECAI, *Prest.*

Account A, referred to in the Report of the Committee.

Receipts and Expenditures of the Raleigh & Gaston R. R. Company, to Jan. 1, 1838.

Capital Stock, being Cash rec'd on account of Instalments, to Jan. 1, 1838,		$406,125 85
Borrowed of the Bank of the State,		70,000 00
Expended on account of Surveys,	$31,632 01	$476,125 85
" " " Salaries,	11,112 32	
" " " Land Damages,	10,790 47	
" " " Horses,	740 00	
" " " Gaston Bridge	48,903 69	
" " " Masonry,	12,516 72	
" " " Superstructure,	70,260 07	
" " " Depots, Water Stations, &c.	3,425 08	
" " " Contingent Expenses,	1,751 32	
" " " Excavation and Embankment,	222,103 03	
" " " Iron,	40,996 17	
" " " Tar River Bridge,	1,929 88	
" " " Cars, &c.	40 00	
Total amount of Expenditures to January 1, 1838,	$456,199 76	$456,199 76
Balance of Cash on hand, January 1, 1838,		$19,926 09

Raleigh, January 20, 1838.

In pursuance of the order made by the Stockholders, at the last annual meeting, the undersigned have examined the Books kept by the President, and find the accounts so arranged as to present the receipts and disbursements under the appropriate and proper head.

The receipts from the Stockholders, to the first of January 1838, amount to	$406 125 85
Amount obtained from the Bank of the State of North Carolina on loan	70 000 00
	$476 125 85
The aggregate expenditures, supported by proper vouchers, amount to	456 199 76
Shewing a balance in the hands of the President, to be accounted for of	$19 926 09

The account hereto appended, marked A, will shew the different Receipts and Expenditures. The Expenditures under the different heads, in the Exhibit, shew the amount of the cost of the operations on the various contracts, and will be found on examination, by each Stockholder, to be supported by proper and satisfactory vouchers on file in the Office of the President. In passing on the accounts, we required vouchers in support of the different charges. They were readily produced, and, as far as we are competent to judge, we are of opinion, that, in every respect, the management of the operations by the President, and other disbursing Officers, has been judicious and proper.

We submit the foregoing, respectfully, as our Report, and suggest that, if the same should be approved, that the President be directed to balance the Books accordingly.

Respectfully submitted,

WM. ROBARDS.

WM. PEACE.

To the Stockholders of the
Raleigh & Gaston R. R. Company.

REPORT OF THE CHIEF ENGINEER.

RALEIGH, JANUARY 19, 1838.

GENTLEMEN:—In accordance with established usage, I beg leave to submit to you, on the occasion of the approaching Meeting of the Stockholders, the following Report of the progress and present state of the work committed to your charge. And I shall combine therewith, as requested, a general description of the Road, as now located. This was not done previous to the last Annual Meeting, because the location was incomplete, and it was thought unnecessary to make any report on the subject until it was completed.

Before entering on this description, I will briefly advert to the circumstances which led to a choice of routes. One of the earliest duties assigned to me, as your Engineer, was to make a reconnoissance and a survey, if it was found necessary, of two routes which presented themselves—the one passing up the ridge which separates the waters of Roanoke from those of Tar River, and crossing the last named River above Louisburg; and the other taking a more direct course to Raleigh, and consequently passing all the streams lower down. The result of this reconnoissance was given in detail in my letter of May, 1836. The Board agreed with me in preferring the upper or Western route, and all my subsequent observations on this line have gone to confirm me in my former impressions in its favor. The elevations and depressions found, equalled my most sanguine expectations; though it was believed expedient, in some cases, to adopt grades with higher rates of ascent than were at first contemplated.

To proceed with my account of the Road: It consists of two Divisions—the first commencing at Gaston, and extending to a point in the vicinity of Chalk Level, 39½ miles from the South side of Roanoke River; and the second, extending from that point to Raleigh. Beginning with the first Division, the line, as located, and in part constructed, is an extension of

the long straight line terminating the Greensville and Roanoke Rail-Road; which is continued across the River, and for one mile up the ravine, on the South side. Thus the Valley of the Roanoke is passed by a straight line, of between three and four miles in length. This is a matter of some moment, when we consider that there are two steep inclined planes, descending towards the same point, and separated by the intervention of a short level. It may be important, as a safeguard against accidents, that the Engine man on the Locomotive, coming down one of these planes, should be able to see some distance up the other. The grade on the Greensville and Roanoke Rail-Road is 94 feet per mile; that on your's, is 63 feet per mile.

The River is crossed by means of a Bridge of 1040 feet in length, consisting of six spans, the greatest of which is 169 feet. The Abutments and Piers are of substantial masonry, coursed and dressed above water. Three of the Piers, together with the Abutments, are built by means of coffer dams, upon the solid rock in the bed of the stream. The other two Piers are built on cribs, made of large timbers strongly framed together, which are filled and surrounded with rip-raps. These cribs rest in like manner on the solid rock, and the timber work is raised to a point sufficiently below the surface of the water to avoid the danger of decay. We were fortunate in procuring for this work a granite which, for beauty and durability, I believe to be unsurpassed by any in the world. The stones used, frequently present natural faces, which are almost perfect planes. I have seen a mass, thrown from the quarry by a single blast, which presented a natural plane surface of almost 100 superficial feet. The superstructure of the Bridge is of the Susquehanna White Pine, built on the plan of Town, but with the number of lattice pieces doubled, and an extra set of chords.

After crossing the River, the Road ascends for a distance of 14,045 feet, at the rate of 63 feet per mile—a rate of ascent which is never afterwards reached on your work. The line then continues along the ridge before mentioned, which di-

vides the waters of Roanoke and Tar Rivers, until it descends towards the latter.

This ridge, though comparatively uniform, is indented by numerous heads of streams, which, though so small as to require little else than dry stone drains to vent them, frequently occasion embankments of 30 feet, and more rarely, of 50 feet in height. The number of drains is so great, as to have added considerably to the cost of the work. The cuts, necessary to equalize the excavation and embankment, are frequently 20 and sometimes 30 feet in depth. The highest point of this ridge is 500 feet above tide water, and, as is always the case in such elevated countries, the inequalities in the surface are much greater than a casual observation would lead us to suppose. The character of the soil on this division of the road, and indeed throughout the whole extent of the work, is such that the repairs, usually so heavy a tax on the profits of Rail Roads, will be far less than on any Rail Road with which I am acquainted. Most of the cuts will be easily kept dry, and the earth is, in general, of sufficient consistency, to stand at the slopes given in constructing the work.

In adjusting the grades on this portion of the road, a view was had to the great accession of trade which may be expected at Henderson Depot. As far as was consistent with a just regard to economy, an effort was made to preserve the rates of ascent and descent, especially when opposing the heavy trade, at the lowest possible *maximum*. The accompanying Table, marked A, will give you the grades adopted. It will be seen that the grades opposing the heavy trade constitute only about one-fourth of the whole length of the Division, and of these, $3\frac{1}{2}$ miles are at the rate of 10 feet per mile and under—$4\frac{1}{2}$ at the rate of 20 feet per mile and under, and $2\frac{1}{2}$ at the rate of 25 feet per mile and under. They are most of them so short, that the *momentum* alone of the train will overcome them. On the whole, we may consider these grades sufficiently gentle for great useful effect. With regard to di-

rection likewise, the line is decidedly favorable, as will be seen by reference to the accompanying Table, marked B. This Table, as well as the one marked A, commences on the south bank of Roanoke River, nearly half a mile from the point where the Raleigh and Gaston Rail Road leaves the Greensville and Roanoke Road. For this distance, the grade rises at the rate of 25 feet per mile. After leaving the bridge, nearly 29, out of the 39½ miles, consist of straight lines, and the curves are all sufficiently gentle, their radii varying from 11,460 feet to 1,910 feet.

Along the line, at the points most likely to concentrate the trade of the adjacent country, suitable Depots have been erected. The first Depot, at Littleton about nine miles from the river, is the most convenient point for receiving the produce of all the country lying on Little Fishing Creek and on Great Fishing Creek, near their junction. The next Warehouse, at Edgerton's, will be the point of delivery for many very productive Plantations between the Road and the Roanoke river. Opposite to Warrenton, a Depot has been erected, solely with a view to accommodate the trade of that place. The next depot is fixed at the distance from Edgerton's which is usually allowed between stopping places, without reference to the Warrenton Depot. It is at the house of Mr. John E. Twitty, where the road from Williamshoro' comes into the Raleigh road. This Warehouse will receive the products of the country for a considerable distance, on each side of the Rail Road. A large quantity of Tobacco may be expected at this point.

The second division of the road commences, as I have before stated, near Chalk Level. At one mile and three quarters from its commencement, Henderson Depot is placed.—This is by far, the most important intermediate Depot on the line. The Tobacco and other agricultural products of Granville, Person, Caswell, and a part of Franklin counties, will be brought here. The trade from this fertile country will

add largely to the receipts of your Road. Oxford is but ten miles from Henderson. The house erected here is of the same size with the other Depots on the line, but it is so arranged, that it may be at any time enlarged to any extent. It will probably be necessary to enlarge it considerably, but this can be better done when a short trial has shewn us what will be required.

On the first eight miles of the second division, the work is very light. As the line descends to Tar river, the surface of the country becomes more broken, and deep cutting and filling often occurs, and in the excavations near the river, a great deal of rock has been found. The work at Tar river will be costly. The road crosses the river at an elevation of ninety-four feet above the surface of the water. Altho' a span of 300 feet would have been ample for the passage of this stream, it has been found economical to use a bridge of 825 feet in length. After thus extending the bridge, the embankment at each abutment still exceeds fifty feet in height. The abutments are of strong rubble masonry laid without cement—the piers, four in number, are of *coursed rock work*. This character of work combines a great degree of strength with a handsome appearance. Granite, of a suitable quality, has been found in great abundance near the site of the Bridge. This structure will be on the Lattice plan also; but, in this case, the roadway will be about four feet below the top of the Bridge instead of being near the bottom as at Roanoke. Yellow Pine for this work can be obtained within a reasonable distance. The line, after leaving Tar river, ascends for more than 3 miles at the rate of 39 6-10ths feet per mile, attaining the ridge between Tar river and Cedar creek, without meeting with any serious obstruction. About four miles from Tar river, at the point where the Rail Road crosses the road leading from Hillsboro' to Louisburg and Tarboro', it has been determined to place a Depot. The road running from this point to Hillsboro', is remarkably level and good, and leads,

as you are aware, to a rich agricultural country. Tobacco and other articles will be received here from the greater part of Orange and Guilford, and Cotton from the country below. The merchandize for Louisburg will probably be brought here as the cheapest and most expeditious route.

After passing this ridge, the line descends to Cedar creek, where another deep valley is encountered. Indeed, throughout the whole extent of this division of the road, the streams are very much depressed below the general level of the country. So, that grades, suited to Locomotive power, cannot be obtained without having very high embankments. The grade at Cedar creek is about 70 feet above the surface of the water. Here it is contemplated to have a Bridge of about 600 feet in length. The ground, after passing Cedar creek, is very broken and continues so for the greater part of the distance to Neuse river. The two forks of Brandy creek, Richland creek and many other streams of less note, require heavy embankments. The line for the ten miles next to Neuse, runs always not far distant from the road leading from Simms' Bridge to Powell's Bridge, and crosses Neuse between Powell's and the Falls' Bridge. The crossing at Neuse will be less expensive than that of any other stream of similar size on the road. It is passed at a moderate height and a favorable bluff on the South side will greatly facilitate the graduation. I cannot omit to mention here the valuable water power afforded by the Falls of the River, a short distance above our bridge. Doubtless, this will be turned to some useful purpose when the resources of this country have been more clearly developed, and the spirit of enterprise stimulated by the completion of your work. Any use which can be made of it will add to the transportation on the road.

To proceed: After leaving Neuse, we encounter a great deal of expensive work. At first, heavy cutting, and afterwards a continual transition from cutting to embankment, and the reverse. At Jeffreys' creek, Manning's and Marsh creek,

we shall require expensive structures of masonry and high embankments. The last large stream to cross is Crabtree, over which it is contemplated to build a Lattice Bridge. After leaving Crabtree, the line will ascend to Raleigh at rates which can easily be overcome by Locomotive power. The road will terminate at Halifax street, between Mrs. Miller's and Mr. T. P. Devereux's, on a suitable site for a Depot. It is intended to erect here, sometime during the present year, a commodious Warehouse and the necessary work shops.

There has not been sufficient time to collect the necessary information for locating any of the Depots, between the one mentioned, four miles south of Tar river and Raleigh.

It could not be expected that where the streams are so numerous and the dividing ridges so high, very moderate grades could be obtained. Those adopted, however, will be found to oppose no serious obstacle to the transportation on your road. The accompanying Table marked C, shews the grades used, and Table D, the direction of the lines.

With regard to the progress and present condition of the work, I have to say—

That the Bridge, at Gaston, is in a state of forwardness, and will probably be passed early in March. It had been foreseen that there would be great difficulty in procuring timber for this Bridge in proper time. It was impossible to get Yellow Pine nearer than in the vicinity of Jackson, on the Portsmouth Rail Road, or near the Roanoke, below the town of Halifax. Long experience had taught me to dread the delays which would occur in transporting timber from either of these points. This, together with the consideration of the superior value of the White Pine for this kind of structure, induced me to procure nearly all the timber from Port Deposite in Maryland. A contract was made for this timber with Mr. Isaac Brown and Messrs. Jones & Reinehart, which was promptly and faithfully executed. I have no cause to regret having gone to such a distance for timber; for, tho' the cost

was somewhat increased, it was not so much so as to counterbalance the advantages gained in the quality of the timber and the early delivery. I contracted for a few of the larger pieces, to be gotten of Yellow Pine from the vicinity of Hill's Ferry on the Roanoke. Every effort has been, hitherto, ineffectually made, to get these pieces delivered. But, for this delay, the bridge might have been passed on the first day of January. The whole of the timber, however, will now soon be on the ground, and the work will be pressed with the utmost vigour. Ten miles of the Road will be ready for use on the completion of the Bridge. The graduation is finished for a distance of 48 miles, with the exception of a very small amount of work at two points, which will soon be completed. The timber for this division of the Road is nearly all delivered, and the superstructure is in rapid progress. Five Depots will be finished in a short time. There can be no doubt that the 48 miles will be ready for use, by the first day of July next, and possibly at a much earlier date. The grading of about 15 miles beyond this is well advanced. A large force is at work on the Bridge at Tar River—the masonry is progressing rapidly. One contractor is at work with an ample force getting the timber for the superstructure, and another is engaged to construct the Bridge as soon as the timber shall be ready. It is hoped, though not expected with certainty, that the Road will go into operation to the Hillsboro' Road Depot, 4 miles south of Tar River, by the close of the year. Its completion cannot possibly be delayed much beyond that period.

All of the excavation, and embankment, and superstructure, from Tar River to Raleigh, are now under contract, and the contractors are commencing their work. The greater part of the masonry and Bridges are under contract likewise. All the arrangements have been made with a view to complete the work in eighteen months from this date. Should our anticipations be realized, (and the progress of the work up to this

time encourages us to hope that they will,) this work will be finished in as short a period as any of the same magnitude ever has been completed in the Southern country. On the works in the Middle and Northern States, any number of laborers may be collected; but here, whites cannot be induced to remain, and it is difficult to procure enough slave labor to execute work rapidly. But for the great exertions used, and the many inducements held out to persuade the owners of slaves to hire them on the Road, we would not have been able to collect a force during the past year. Now, however, since they have tried the experiment, the profits are sufficient to induce them to continue it.

I deem it due to myself to say, that, before the plan of Superstructure used on this Road was adopted, the subject was well weighed, and all the plans which have been proposed by others were carefully examined. But none, in my opinion, combined as many advantages as the one adopted.—This is the plan used on the Petersburg and other Rail-Roads; which I have adhered to, although it might render me obnoxious to the charge of want of originality. I thought it very desirable to use a thicker Iron, experience having clearly shewn its advantage: but when the Iron was purchased, the price was very high, and it was thought inexpedient at that time to swell the cost of the work by procuring a more expensive Rail.—It may be found best (the price having fallen) to use Iron $\frac{5}{8}$ or $\frac{3}{4}$ of an inch thick, for the remainder of your Road.

It remains to give you an estimate of the cost of the Road. This can be done for the first Division with some degree of accuracy, the work being so nearly finished. Before doing so, however, I beg leave to call your attention to the circumstances which have affected the cost of this work.

At the time that the first Division was let, in October 1836, the rage for speculation was at its highest pitch, and the price of every thing had gone higher, perhaps, than was ever known before in our country. There was a great deal more work offered in all parts of the United States, than contractors could

be found to take. It was particularly difficult to procure contractors here, where no work had been going on previous to this time. The effect of this state of things was counteracted, in some measure, by promising the contractors facilities which they could not obtain elsewhere. Still the cost of your work has been increased by the high prices, beyond what it would have been under ordinary circumstances. There has been something, too, sacrificed for expedition. It was impossible to execute a work so rapidly, at the same cost as if the usual time had been allowed. It should be considered, also, that this is probably the heaviest work which has been hitherto constructed South of Potomac River.

But with all these difficulties, I challenge comparison with any other work in our country.

Estimate of the cost of the First Division, 40 miles in length.

Graduation and Masonry, including Gaston Bridge, -	$277,000
Superstructure, $4,000 per mile, - - - -	160,000
Depots, - - - - - - - - -	12,000
Superintendence and Contingencies, - - -	50,000
	$499,000

Which is at the rate of $12,475 per mile, or $10,975 per mile, exclusive of the cost of Gaston Bridge.

Cost of the Second Division, 44½ miles.

Graduation and Masonry, including Bridges, - -	$493,000
Superstructure, $4000 per mile, - - -	170,000
Depots, - - - - - - - - -	25,000
Superintendence, &c. - - - - - -	20,000
	$716,000

Making the aggregate cost of $1,215,000, for the whole 84½ miles. The estimate of the cost of the Second Division is not to be considered as accurate, but is believed to be sufficiently so, for our present purpose. We may safely take this sum as the limit which will not be exceeded.

All which is respectfully submitted.

CHAS. F. M. GARNETT, C. E.

To the President and Directors of the Raleigh and Gaston R. R. Company.

Table A, referred to in Engineer's Report.

TABLE OF GRADES—FIRST GREAT DIVISION OF THE RALEIGH AND GASTON RAIL-ROAD.

Length of Grades.	RATE PER MILE. Ascent.	Descent.	Total Ascent.	Total Descent.	Total Level.
550	-	-	-	-	Level.
14,045	62.99	-	165.40	-	
1,400	-	-	-	-	Level.
8,665	-	5.28	-	8.70	
500	-	-	-	-	Level.
2,918	29.57	-	16.00	-	
1,300	-	-	-	-	Level.
1,100	-	19.53	-	3.90	
1,100	-	-	-	-	Level
2,200	29.56	-	11.56	-	
2,300	-	-	-	-	Level
8,100	39.07	-	59.94	-	
1,800	-	-	-	-	Level.
7,811	-	24.81	-	37.00	
14,758	-	-	-	-	Level.
2,100	18.48	-	7.70	-	
3,130	-	-	-	-	Level.
2,413	-	20.06	-	8.70	
800	-	-	-	-	Level.
4,384	26.40	-	22.50	-	
1,400	-	-	-	-	Level.
5,727	-	22.17	-	24.48	
400	-	-	-	-	Level.
2,300	12,18	-	5.29	-	
2,800	29.56	-	15.68	-	
1,800	-	-	-	-	Level.
5,000	13.73	-	13.00	-	
4,200	-	-	-	-	Level.
7,600	39.00	-	56.24	-	
300	-	-	-	-	Level.
2,700	-	15.84	-	8.10	
700	-	-	-	-	Level.
5,700	25.87	-	27.92	-	
3,100	-	-	-	-	Level.
3,100	-	20 00	-	11.78	
4,600	-	-	-	-	Level.
7,800	-	12.67	-	18.72	

Length of Grades.	RATE PER MILE. Ascent.	Descent.	Total Ascent.	Total Descent.	Total Level.
5,500					Level.
900		18.48		3.15	
2,100					Level.
1,300		20.00		4.94	
3,800					Level.
1,200	35.38		8.04		
8,225					Level.
5,400	39.07		39.96		
1,000					Level.
3,500		8.45		5.60	
500					Level.
5,800	23.76		26.10		
600					Level.
1,500		6.86		1.95	
604					Level.
1,500	29.56		8.40		
400					Level.
4,558		7.92		6.83	
2,100					Level.
1,300		15.84		3.90	
600	38.01		4.32		
816					Level.
1,700	38.54		12.41		
2,200					Level.
700		31.68		4.20	
300					Level.
2,198	38.54		16.04		
2,575					Level.
1,100	29.56		6.16		
300					Level.
3,600		20.00		13.68	
400	8.45		0.64		

Table B, referred to in Engineer's Report.

TABLE OF DIRECTION—FIRST GREAT DIVISION OF RALEIGH AND GASTON RAIL ROAD.

Total length of straight line.	Total length of curvature. Radius 11,460 ft	Radius 5,730 ft.	Radius 3,820 ft.	Radius 2,865 ft.	Radius 1910 ft.
152,665	6,850	14,275	2,000	22,029	10,783

Table C, referred to in Engineer's Report.

TABLE OF GRADES—SECOND GREAT DIVISION OF RALEIGH AND GASTON RAIL ROAD.

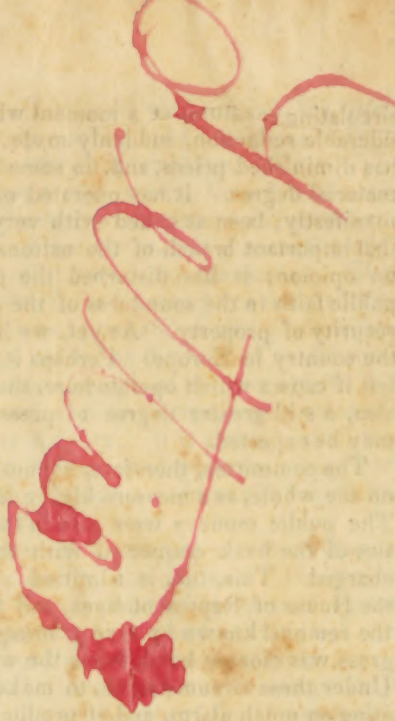
Length of Grades.	RATE PER MILE. Ascent.	Descent.	Total Ascent.	Total Descent.	Total Level
1,400	33.94		9.00		
9,825					Level.
1,575		16.76		5.00	
5,300	11.94		12.00		
2,400		20.90		9.50	
300					Level.
1,600	19.80		6.00		
5,280					Level.
7,958		35.00		52.75	
3,800		30.00		21.28	
300					Level.
2,461	38.00		17.72		
300					Level.
1,600		17.00		5.12	
4,760		35.00		31.89	
400					Level.
900	30.00		5.04		
400					Level.
2,100	30.00		11.76		
2,100		29.538		11.76	
15,080		34.843		99.512	
1,030					Level.
17,675	39.60		132.599		
200					Level.
4,600		14.322		12.65	
3,000					Level.
7,000		34.848		46.20	
800					Level.
8,045	39.60		60.338		
600	39.60		4.50		
213,63					Level.
1186,4		34.84		7.83	
300					Level.
750	39.60		5.62		
1,404					Level.
2224,8		34.84		14.68	
317,9					Level.

Length of Grades.	RATE PER MILE. Ascent.	Descent.	Total Ascent.	Total Descent	Total Level.
3424,3	34.84		22.6		
379					Level
2100	34.84		13.86		
300					Level.
2600		34.84		17.16	
300					Level.
2700	39.60		20.25		
735	31.68		4.41		
365					Level.
2819,5		31.68		16.91	
4813,8					Level.
6700		39.60		50.25	
2766,6					Level.
4900		31.68		29.40	
1000					Level.
2000		39.60		15.00	
41,00		31.68		24.60	
1100					Level.
5304		39.60		39.78	
929,3					Level.
8966,7		34.84		58.56	
300					Level.
5,300	39.60		39.75		
1,700					Level.
1,227		34.848		8.10	
173					Level.
2,417	39.60		18.13		
1,283					Level.
1,260		35.904		8.56	
640					Level.
6,537	50.16		62.10		
263					Level.
4,100		39.60		30.75	
200					Level.
1,100	21.12		4.40		
200					Level.
1000		10.56		2.00	
200					Level.
600	26.40		3.00		
200					Level.
2,800		39.60		21.00	
200					Level.

Length of Grade.	RATE PER MILE. Ascent.	Descent.	Total Ascent.	Total Descent.	Total Level.
900	34.848		5.83		
1,500					Level
7,100		50.16		66.75	
500					Level
2,100	50.16		19.95		
200					Level
1,400		44.88		11,90	
300					Level
8,400	50.16		79.54		
1,000					Level

TABLE OF DIRECTION—SECOND GREAT DIVISION OF THE RALEIGH AND GASTON RAIL-ROAD.

Total length of straight line.	TOTAL LENGTH OF CURVATURE. Radius 11.825	Radius 11.460	Radius 7.640	Radius 5.730	Radius 3.820	Radius 2.865	Radius 2.547	Radius 1910
140.230.7	4.075	4.176.5	98 9365	17203.7	8043.9	35.386.8	2.788.0	16160.00



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